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ABSTRACT

This practicum was designed to demonstrate the value of Gestalt learning theory in teaching a unit of study on air pollution in Polk County, Florida. Students researched specific viewpoints based upon assigned positions in regard to air pollution (Cattlemen's Association, Florida Phosphate Council, Florida Citrus Mutual, Mid-State Lung Association, Environmental Protection Commission, Audubon Society, Chamber of Commerce, American Association of Retired People), and presented their positions at a mock public hearing dealing with the establishment of air quality standards and extension of time for violating industries not complying with existing air quality standards. Later they were asked to reverse their roles and assume the responsibility of the hearing examiner in rendering fair decisions in the best interest of the general public. A pre- and post-attitudinal survey was conducted to determine the effectiveness of this technique in broadening students' insight into the whole picture of air pollution as it relates to the economy, private interest groups, and the general public. Results of the post-test reflected measurable changes in attitudes toward violating industries, reasons for establishing air quality standards, and the public hearing as a technique for collection of data. The attitudinal survey, a notice of public hearing, a sample testimony, and background statements on each group are appended. (DC)

APPLICATION OF THE GESTALT THEORY OF LEARNING IN TEACHING A UNIT OF STUDY DEALING WITH AIR POLLUTION IN POLK COUNTY

BY

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Polk Community College

A PRACTICUM PRESENTED TO NOVA UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF EDUCATION

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Introduction

The purpose of this practicum is to design and conduct a classroom teaching experience whereby the Gestalt theory of learning will be demonstrated. Students will research specific viewponts based upon assigned positions in regard to air pollution. After having presented these viewpoints to the class in a mock public hearing, they will be called upon to reverse their role and assume the responsibility of the hearing examiner in rendering fair decisions (based upon information presented in the public hearing) in the best interest of the general public. A pre and post attitudinal survey will be conducted to determine the effectiveness of this technique in broadening student's insight into the whole picture of air pollution as it relates to the economy, private interest groups, and the general public. By employing a Gestalt approach to learning, this classroom teaching technique will show that isolated viewpoints do not give as complete and composit a picture of a given situation as the union and assimilation of isolated viewpoints to form a whole picture, based upon their relational characteristics.

Review of the Literature

The position of Gestalt phychology was formally stated first by the German philosopher-psychologist Max Wertheimer in 1912. The central idea of Wertheimer's point of view is expressed in the German word Gestalt, which means an organized pattern or configuration - or more simply - an organized whole in contrast to a collection of parts. The notion that a thing cannot be understood by study of its constituent parts, but only by study of it as a totality, is probably very old. Gardner Murphy suggests that it can be found in the literature of pre-Socratic Greece.[1] Various Greek writers proposed that the universe could be best understood through "laws of arrangement" or "principles of order," rather than through study of its basic building blocks, the elements.

Ernst Mach (1838-1916), a nineteenth-century forerunner of Wertheimer, held that the worlds of physics and psychology are essentially the same, and that the psychology must take into account those sensations that do not correspond to the physical reality before the viewer. He contended that the non-physical sensations are sensations of relationship, an important element in Gestalt thinking. In the 1890's, Christian von Ehrenfels pursued the same idea and stated that in all perception, qualities appear that represent more than the physical items sensed. He believed that a perceiver tends to confer on the physical objects of perception a form, configuration, or meaning. That is, he tries to organize or integrate what he sees. For him, his perception of his environment represents reality in the only sense that he can know reality.

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[1]Gardner Murphy, Historical Introduction to Modern Psychology, New York: Harcourt Brace Jovanovich, 1949, p. 284.

Ehrenfel psychologists tend to think of a person's environment as psychological; it consists of what he makes of what is around him. It is that portion of life space or perceptual field that surrounds a person or self. A psychological environment includes impressions of parts of the physical environment, but not necessarily all of it. It also extends beyond its physical environment. Sometimes a person's psychological environment includes largely memories or anticipations; in this case he is scarcely aware of the physical world currently around him.

The combined views of Mach and Ehrenfels gave rise to a school of thought typically described in a single word, Gestaltqualitat, which means approximately "the quality conferred by a pattern." According to the proponents of this school, a single part of a whole does not have fixed characteristics; it gets its characteristics from the context in which it appears. For example, a patch of color in a painting derives its quality from its context - the surrounding picture pattern rather than from anything inherent in itself.

Wolfgang Köhler and Kurt Koffka were mainly responsible for publicizing Gestalt phychology in the United States. Köhler is most famous for his study of the learning process in champanzees (The Mentality of Apes, 1925). In this study he set out to test Thorndike's hypothesis that learning is a matter of trial and error in which correct responses are gradually stamped in. Köhler observed that, in addition to their exhibiting learning that might appear accidental, his apes also displayed a type of learning that appeared insightful. Köhler's findings were further substantiated in Kurt Koffka's Growth of the Mind, which also criticized Thorndike's trial-and-error-learning.

Kurt Lewin, also German, took the spirit of Gestalt theory, added to it some ne.. concepts, and coined a new terminology. He developed a field psychology usually referred to as topological and vector psychology, (deriving these terms from the fields of geometry and mechanics).[2] Lewin, like Köhler and Koffka, spent his later years in the United States, where he aquired a considerable following. His psychological theory has contributed much to the current Gestalt cognitive-field theory.

A Gestalt-field psychologist regards motivation in the learning process as a product of disequilibrium within a life space. A life space includes goals and often barriers to the achievement of these goals. A goal may be either positive or negative - something one wants to achieve, or something one wants to avoid. When a barrier - that is, any obstacle to the direct and immediate achievement of a goal, whether physical or psychological - appears, a person feels tension. He tries to relieve tension either by surmounting or circumventing the barrier. The tendency to release tension by proceeding toward a goal, including the overcoming of whatever barriers are in the way, is motivation from the standpoint of a Gestalt field-psychologist.

Another feature of the Gestalt-field theory is the emphasis placed on the present situation. Motivation, to a Gestalt-field theorist, grows out of one's contemporary life space - the psychological forces that are operating right then. In contrast, a stimulus-response (S-R) theorist tends to think of motivation as emerging from an accumulation of historical events; past conditionings, coupled with currently operating organic drives. Consequently, an S-R theorist looks backward to a person's life to determine why he behaves as he does now.

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[2]Kurt Lewin, The Psychology of Learning, Chicago: U. of Chicago Press, 1942, p. 215.

Neobehaviorist,, Donald O. Hebb, categorically states that psychology must assume that man is basically a mechanism and not subject to the acquisition of insight as described by Gestaltists. Hebb says,"All one can know about another's feelings and awareness is an inference from what he does - from his muscular contractions and glandular secretions."[3] To a psychologist such as Hebb, Gestalt psychology would appear to be nothing more than "confusionism." Hebb contends that the philosophical orientation of behavioristic psychologists is so thoroughly mechanistic that any other outlook seems untenable.

The principle point of departure between Gestalt psychologists and the behaviorists' school, which incorporates strong elements of mechanicalism, is the use of the term "insight" and how it is achieved. This, coupled with the insistence on the part of behaviorists that learning is conditioning, sets the two schools apart. Gestalt theorists attack three weaknesses in the theory that learning is conditioning (1) the attempt of behaviorists to explain complex interrelated organizations in terms of simpler elements, that is, to insist that learning consists of an accumulation of individual conditioned responses or operants, each relatively simple in itself, but eventuating in a complicated pattern of habits; (2) their tendency to attribute learning to reduction of basic organic drives; and (3) behaviorists' tendency to ignore the apparent purposiveness much behavior. [4]

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[3]Donald O. Hebb, The Organization of Behavior: A Neuro-Psychological Theory, New York: John Wiley, 1949, p. xxxi.

[4]Rollo May, Psychology and the Human Dilemma, New York: Van Nostrand Rinehold, 1967, p. 190.

For a teacher to teach a student in a significant way, it is imperative that there be an intersection of the student's life space with the teacher's and with the other life spaces in the room. Life spaces intersect when they have regions in common. To insure an adequate intersection of life spaces, a teacher must probe the various regions of the life spaces of his students. It should be born in mind that a "self" is constantly in the making as one develops new insights, changes old ones, and forms new habits. Furthermore, a far-reaching change in structure of a self or person can occur through one's developing a significant educational insight. And finally, acquiring a new educational insight can be as significant and far-reaching as a student's falling in love, becoming converted, or realizing a great change in his physical and social environment.[5]

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[5]Bigge, Morris L., "A Relativistic Approach to the Learning Aspect of Educational Psychology", Educational Theory, July 1954, p. 213.

Background and Significance

Crocker and Rodgers (Environmental Economics, 1971) report several cases of serious conflict between cattle and citrus interests vs. phosphate interests which led to the establishment of air quality and smokestack emission standards in Florida. These cases rovolve around damage sustained by citrus trees and the impairment of cattle's health traced to fluorides in the air. Fluoride is a by-product of producing triple-super-phosphate fertilizer, an essential commodity in the production of food. Phosphate companies are currently struggling to comply with the legal restrictions placed upon them by present legislation which sets smokestack emissions at minimum levels.

Mr. David Forhan, air engineer for the Department of Pollution Control - Region VIII, cites* (September 1974) major air pollutants in Polk county as fluoride gas, sulfur oxides, and particulate matter. The worst areas in the county are located near phosphate mines, and the phosphate companies (along with plants that produce sulfuric acid) are identified as the chief violators of clean air regulations. At present, new plants manufacturing sufluric acid are limited by law to a minimum of four pounds of SO_2 per ton of sulfuric acid manufactured. Old plants are allowed as high as ten pounds per ton. Unfortunately, the average current emission is around thirty pounds per ton, but improvements are anticipated by June 1975 when compliance schedules for many companies materialize.

Mr. Peter Baljet, Executive Director of the State Department of Pollution Control, called a hearing to be held in Tallahassee November 20, 1974, for the purpose of receiving testimony, evidence

*Briefing session with the Air Quality Committee of the Mid-State Lung Association held at the DPC office, Winter Haven, Florida, September 25, 1974.

and public comment concerning existing air quality standards and the extension of compliance schedules for several violating companies. This hearing forms a model around which an effective classroom teaching experience utilizing the Gestalt theory of learning can be constructed. Since views at such a hearing are normally polarized and presented from a singular point of view, it is important that a composite and whole picture be constructed before mutually satisfactory agreements can be reached. The Gestalt approach to constructing such a picture is essential in such a situation.

Wolfgang Köhler, Gestalt psychologist, was able to show in his experiments with apes what he considered to be sudden learning, given the appropriate structural relationship of the environment. He proved that if allowed to perceive the situation in full perspective, the animal (or person) will often demonstrate learning with understanding. If, however, important external cues are hidden from the subject, he will tend to learn in a fashion which appears segmented, elemental, fragmented, and incomplete. He concluded that if one of the goals of instruction is to produce learning and understanding in an efficient manner, then considerable attention should be paid to the organization of the material to be learned. Max Wertheimer, also of the Gestalt school, recognized this problem and the need for instruction which would facilitate understanding as opposed to rote memorization. In his post-humously published book Productive Thinking (1959), he suggests instructional modes to deal with it.[6] To demonstrate that organization is a basic function that is not dependent on associations of peripheral events, Gestalt psychologists

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[6]Max Wertheimer, Productive Thinking, enlarged ed. edited by Michael Wertheimer, New York: Harper & Row, 1959. p. 23.

insist that if peripheral stimulation on various occassions is the same, the resulting perception should in all cases be the same. Conversely, differences in peripheral stimulation should result in differences in perceptual experiences. The important inference drawn from this hypothesis is relational in character. That is, what is seen (or understood) in a given region (or situation) is determined not only by the stimulation arriving from that area, but also by interaction among stimuli arriving from neighboring or surrounding areas.

Polk Community College offers a course, AMS-107 Current Issues in American Resource Usage, that deals with a number of environmental problems as they relate to natural resources. During the course of study the subject of air pollution is examined as it relates to three of Polk county's most vital industries - citrus, phosphate, and cattle. All three of these industries are normally represented either directly or indirectly (current employment, past experience, parental involvement, or expected employment) by students in the course. Students so identified usually have only a superficial knowledge of the full breadth and scope of the county's air pollution problem. Their knowledge is mostly confined to areas associated with their own lives and interests. Further, they do not seem to understand nor appreciate the viewpoints represented by their counterparts. Unless the subject of air pollution is presented in a convincing and forceful way, little effort is normally made toward changing their positions. This is especially true if changing would in some way threaten their economic posture.

Among many students there seems to be a tendency to build a moral case for perpetuating the status quo. Instances have occurred where students leave the course less willing to examine

the problem of air pollution in its entirety than when they entered the course. This is not to say that such persons are necessarily bent upon selfish and evil intent at society's expense. It is to say, however, that if such persons were able to see themselves and their economic interests in perspective or through the eyes of another they would be more willing to implement the necessary changes needed to accommodate the well-being of society as a whole. Often they so clearly see themselves as only part of the picture that they cannot see the whole picture itself.

There is a definite need to cut across lines of isolated viewpoints and assimilate them into a composite picture if conflict is to be resolved and the problem is to be solved. Persons representing the "phosphate viewpoint" need to obtain some insight into the "citrus viewpoint" and vise versa. Cattle, citurs, and phosphate in Polk county are tied together closely in so many ways that is is doubtful if one could completely survive without the other. They are in turn influenced by other segments of society. Yet, this seems to be a relationship difficult for many students to identify.

Gestalt psychologists insist that to understand is to have an awareness of a required relation between immediately given facts. When such understanding is present the relation is experienced as "following from" the given facts - that is, the nexus between them is itself understandable. Given two premises (the position of the phosphate industry and citrus industry, for example) and a conclusion (the need to continue present practices of spoiling the air), the latter either develops out of the former or contradicts it. Such relations, which have the character of "if A, then B and only B," contrast mostly strongly with the association of heterogeneous

facts (positions of other groups). These terms and their relation form a unit, all parts of which are dependent upon oneanother. The unit tends to solidify multiple perceptions (individual self-interest viewpoints) into a single one (that perception which best serves the interest of society as a whole) which possess dimensions in excess of the combined individual dimensions that composed it. The relation in question is thus a dependent part-property of a whole. The first point of the Gestalt account of thinking is that understanding or insight pervades human experience, and that no real thinking is possible in its absence.

Understandable relations have the character of requiredness, or "oughtness." This is the outstanding trait of facts of aesthetics and ethics as well as of logic; in each of these realms requiredness is relationally determined, being a property of an interdependent situation. It is to say that the position of phosphate, citrus, cattle and clean air do not stand alone. They are interdependent and interlocked. Thus, the concept of value becomes related to that of organization. One may observe an important aspect of requiredness when a situation is incomplete, i.e. what to do about the economic need for phosphate in the face of contaminated air produced while processing the phosphate. In such cases the gap has particular properties that produce tendencies toward completion (divergent views as to how to best proceed in cleaning up the air) in accordance with the character of what is given (private self-interest).

The principle point of the Gestalt view is that the operations of thinking do not occur piecemeal, but are the effects of organization and reorganization. In this case, it is the assessing and reassessing of divergent views on how to best retain clean air and at the same time maintain economic stability. First, thinking is a

directed process based on an initial view of a coherent but incomplete situation (the exclusive self-interest of a given group). The direction arises from the problem itself (how to deal with the demands of other groups) - but more accurately, from the gap between the view of the given conditions and the goal. The urge to overcome the difficulty (avoid public censure, fines etc.) creates the tension and vectors that lead to a re-examination of the materials and of the problem. This formulation asserts a distinction between an aggregate of independent facts and a structure; there can scarcely be productive thinking when the possibility of grasping a principle is excluded.

The thrust of this practicum is directed toward designing and implementing a learning experience whereby students will expand their limited view and develop a broader perspective on air pollution. It is expected that the class will gain greater insight into Polk county's total air pollution problem as a result of this teaching technique than would otherwide be the case.

Procedure

In a role playing situation each student in the class was assigned to a group and given the task of preparing to participate in a mock public hearing aponsored by the State Department of Pollution Control for taking statements relative to setting air quality standards for Air Quality Region VIII in Florida. Each of the following groups was represented by the students to present its views to the hearing examiner:

1. The Cattlemen's Association
2. The Florida Phosphate Council
3. Florida Citrus Mutual
4. The Mid-State Lung Association
5. Polk County Environmental Protection Commission
6. The Audubon Society
7. Polk County Association for the Chambers of Commerce
8. American Association for Retired People

Each group was given a background description of their organization and a series of questions to research (see appendix, a. - l.) in advance of the public presentation. To help them in this presentation they were supplied with a sample format of a typical statement that may be adapted to the needs of a spokesman at a hearing (see appendix d.). The students were expected to become "experts" in their particular field of interest, They addressed their research and remarks toward the establishment of air quality standards that best suited their private purposes as related to the contents of the announced public hearing. The hearing examiner did not attempt to make any decision on the spot, but from time to time requested information or points of clarification from representatives in order to bring as many

facts to light as possible. The total body of information was recorded and distributed to each member of the class individually at a later meeting. After having studied the facts, students were asked to assume the role of the hearing examiner in weighing the evidence and rendering a series of decisions regarding air quality standards and their administration as best fitted the needs of the general public. The data base for these decisions was incorporated in and distributed throughout a series of statements included in an attitudinal survey administered to the class both before and after the hearing.

It was expected that the students making judgments based upon limited and selected information would come to different conclusions than they would if broader and more varied information were utilized in rendering judgments. They would more likely agree than disagree with a statement portraying a narrow view toward the problem of air pollution if Gestalt or "wholeness" were lacking in the judgment process. Each statement represented an important concept that needed as complete an understanding as possible if decisions for action arising out of the concept were to be in the best interest of the public. Emphasis was, of course, placed upon the need to accommodate the well-being of the entire air quality region as opposed to the narrow interests represented in the hearing. That is, to "construct a Gestalt" by utilizing component and incomplete parts to form a unified and more complete whole, to achieve greater understanding and insight into a previously more shallow and fragmented situation, to affect a "closure" by utilizing information to fill in spaces where information gaps previously occurred, to "round out" a rough and

Incomplete impression with facts to develop a smoother and more complete impression.

The attitudinal survey was constructed in such a way that the student had an opportunity to certify whether he agreed (by circling an A before the statement), disagreed (by circling a D before the statement), or if he was undecided (by circling a U before the statement)concerning the contents of each statement (see appendix - a.). If it were to turn out that a significant number of students were to alter their judgments subsequent to the hearing, it could reasonably be concluded that the Gestalt theory of learning had been employed and found to be effective in this experiment. Statements in the survey were representative of the kinds of things that an examiner would have to fully understand in order to properly assess data presented at a hearing and render fair decisions. A comparison of the results between the pre and post attitudinal survey was used to measure the effectiveness of this technique in applying the Gestalt theory of learning to a classroom situation.

Results

An analysis of the attitudinal survey with respect to statements having a bearing on the various positions presented at the hearing reflected some significant changes in points of view between the pre and post surveys. One could logically conclude that a Gestalt was "obtained" in numerous cases, judging from the shift in positions after having considered the more inclusive body of evidence that entered into framing a "whole" picture. There were twenty-seven students present to take the pre-hearing survey and twenty-four present to take the post-hearing survey, yet measurable changes in viewpoints did occur. Inferences which may be drawn from a comparison between the two surveys are as follows:

Cattlemen's Association

Reference:

3. Once a co-called "grace period is given to an undustry to clean up its air pollution emissions, no additional extension of time should be given without an accompanying fine.

6. Air components need not be visible to the naked eye to do harm to organic and inorganic materials.

12. There is no essential difference in smokestack emission standards and air quality standards.

19. Air quality standards should be decided by the citizens of a local area such as a county rather than at a state or national level.

Pre-Survey			Statement	Post-Survey		
A	U	D		A	U	D
14	6	7	3	7	3	14
7	11	9	6	15	2	7
1	11	15	12	1	2	20
8	7	11	19	14	2	8

Statement three seems to indicate that after the hearing there was a more tolerant view with respect to imposing fines upon violating industries requesting additional time to comply with the law. This is perhaps due to the revelation of circumstances surrounding compliance demands and the physical difficulty encountered in meeting them. Statement six reflected a reduced number of undecided cases and an increased number of agreements, thereby exhibiting a greater comprehension of how gases behave (as opposed to solids) in polluted air. A similar shift was experienced in statement twelve, indicating a deeper understanding of the differences between smokestack emissions and air quality standards. It is noteworthy that sentiment increased toward allowing local citizens to decide (statement nineteen) air quality standards as opposed to higher levels of government doing so. During the hearing proponents of this position emphasized the important role of the individual in a democratic society as it relates to self government.

Florida Phosphate Council

Reference:

3. Once a so-called "grace-period" is given to an industry to clean up its air pollution emissions,no additional extension of time should be given without an accompanying fine.

4. No industry should be forced to close down for polluting the air if its operations have not essentially changed from what they were before air quality standards were set.

6. Air components need not be visible to the naked eye to do harm to organic and inorganic materials.

14. It is more expensive to clean air that is already relatively clean to a cleaner state than it is to clean very dirty air to a somewhat cleaner condition.

24. The most harmful pollutant emitted from the phosphate industry is nitrogen oxide.

Pre-Survey			Statement	Post-Survey		
A	U	D		A	U	D
14	6	7	3	7	3	14
3	15	19	4	5	4	16
12	6	9	6	20	0	4
5	7	15	14	21	1	3
21	1	5	24	4	4	17

Prior to the hearing, there was widespread belief that a polluting industry had no legitimate excuse for exceeding the assigned time limit to comply with emission level schedules. The position of the phosphate industry was greatly clarified with statistical data to show that fining an industry for the sake of punishment alone was pointless (statement three), especially if such punishment might have the effect of further delaying compliance. This point was apparently taken seriously and was so reflected in the post survey. Most of those who were originally undecided as to the wisdom of closing down a polluting industry because of change in air quality standards (statement four), subsequently adopted the view that the closure was justified. Considerable attention was given in the hearing to the matter of outright closure, which no doubt established a basis for making this judgment. Likewise, indecision existed in connection with the impact of invisible gases upon organic and inorganic materials (statement six), but the discussion of fluorides and their effect upon barbed wire and cattle caused a widespread misunderstanding of the graduated expense involved in cleaning air (statement fourteen) from a clean state to an increased level of cleanness. This was reflected in both the number who were undecided on this issue and those who reversed their view after the hearing. It also became apparent that more people

realized that nitrogen oxides were not the most harmful pollutants emitted from the phosphate industry's smokestacks (statement twenty-four), probably as a result of emphasis upon the role of sulfur and fluorides.

Florida Citrus Mutual

References:

1. The citrus industry is one of the most significant polluters of air in Polk county as a result of burning rubber tires and crude oil to protect citrus trees.
2. Citrus trees more than pay back to society any damage done by burning tires and crude oil because of the oxygen citrus trees produce and the minimum number of days burning takes place.

11. At present we do not possess the scientific technology to remove harmful chemicals and particulates from the air.

Pre-Survey			Statement	Post-Survey		
A	U	D		A	U	D
23	2	2	1	1	0	24
4	20	3	2	23	1	0
12	2	13	11	3	3	19

Considerable insight was gained as to the limited amount of damage that results in burning rubber tires to warm citrus trees as well as the limited number of days per year tires are burned. The overwhelming belief seemed to be that because of the high visibility of particulates resulting in such burning (statement one), there must be a corresponding amount of damage. This concept was dispelled by information presented in the hearing. Likewise, not many respondents seemed to fully understand or consider the contribution trees make to the replinishment of oxygen (statement two) in the atmosphere. It should be noted, however, that the shift to agreement was from a position of being undecided as opposed to being in disagreement. Cases presented in the hearing which were related to atmospheric particulates did

not fully clarify whether or not technology presently exists to remove them from the ambient air, because the degree of removal could not be agreed upon. While there was some indication (statement eleven) that a fewrespondents tended to believe that desired levels of removal is currently possible, there was not uniform opinion on this subject.

Mid-State Lung Association

Reference:

12. There is no essential difference in smokestack emission standards and air quality standards.

18. Some chemic als are so damaging that they should be banned from smokestack emissions entirely.

19. Air quality standards should be decided upon by the citizens of a local area such as a county rather than at a state or national level.

23. It should be the responsibility of an official government agency to monitor air quality, and private citizens, clubs, and special interest groups should not attempt to assume responsibility for this function.

Pre-Survey			Statement	Post-Survey		
A	U	D		A	U	D
1	11	15	12	1	3	20
1	6	20	18	21	3	1
8	7	11	19	14	4	8
3	10	14	23	6	3	16

Originally there was considerable ambiguity as to the meaning of smokestack emission standards (statement twelve) and air quality standards, but emphasis upon the differences as they relate to the health of those most sensitive to ambient air moved several respondents from indecision to a definite position. An equally dramatic shift was experienced from disagreement to agreement in banning a few lethal chemicals from the air altogether, (statement

eighteen). This was perhaps because of the attention given in the hearing to the growing number of people who are already ill, and are unable to tolerate any further body damage at all due to bad air. The work of the Mid-State Lung Association (according to the hearing representative) as a citizen air monitoring agency was not well understood, but was apparently clarified as shown (statement nineteen) by increased agreement with its stated function. This view is again reinforced (statement twenty-three), by the reduced number of undecided respondents and the increased number of respondents who registered disagreement.

Polk Environmental Protection Commission

Reference:

9. Testimony from private citizens who are untrained in matters of air chemistry should not be included as part of a public hearing record designed to set air quality standards for a given region.

21. Government bodies, such as municipal governments, should not be held to air pollution standards since they operate on a no profit basis and with the consent of the public.

Pre-Survey			Statement	Post-Survey		
A	U	D		A	U	D
19	1	7	9	3	1	21
1	5	21	21	1	0	20

The abrupt shift from agreement to disagreement (statement nine, state negatively) in connection with the role of untrained private citizens participating in helping set air quality standards seems to indicate a greater understanding of the important role of private citizens play in making local decisions. Public agencies, such as the Environmental Protection Commission, are particularly sensitive to this viewpoint, as was explained

during the hearing. The only other significant shift related to this agency's position was five undecided cases, which joined those who would hold government agencies to compliance with air quality standards.

The Audubon Society

Reference:

12. There is no essential difference in smokestack emission standards and air quality standards.

19. Air quality standards should be decided upon by the citizens of a local area such as a county rather than at a state level or national level.

25. There should be minimum air quality standards set which are regarded as the very worst air can get and still be safe, and under no conditions should the air quality be allowed to drop below this level.

Post-Survey			Statement	Pre-Survey		
A	U	D		A	U	D
1	11	15	12	1	3	20
8	7	11	19	14	4	8
2	13	12	25	18	2	5

The Audubon Society representatives presented a strong case for the differentiation between air quality standards and smokestack emission standards. Their argument was based upon the destruction of wildlife and the sensitivity that some species have to minute particles of pollutants in the air. This differentiation no doubt had some bearing on the moving of some respondents (statement twelve) away from indecision to adopt a definite opinion. Closely related to this position was the belief that local citizens should have a strong voice in deciding what local air quality standards should be. Statement nineteen reflects an increased number of agreements with this philosophy. It follows then (statement twenty-five), that minimum air quality

standards should be established and preserved. One finds a thread of consistency in the respondents' reasoning if statement twenty-five is related to statements twelve and nineteen.

Polk County Chambers of Commerce

Reference:

4. No industry should be forced to close down for polluting the air if its operations have not significantly changed from what they were before air quality standards were set.

16. Some industries should be given special consideration in compliance to air pollution standards because of their essential contribution to the economy.

Pre-Survey			Statement	Post-Survey		
A	U	D		A	U	D
3	15	9	4	5	4	16
10	4	13	16	12	6	6

The most significant impact that the chambers of commerce group made was shown in the numbers of respondents who were not sure if an industry should be closed down altogether for violating clean air standards. At least eleven (statement four) took a definite stand on the subject after the hearing. More students also felt that some special consideration should be given to certain industries (statement sixteen) for their past contribution to the economy.

American Association for Retired People

Reference:

6. Air components need not be visible to the naked eye to do harm to organic and inorganic materials.

10. Sunshine serves to create new and more harmful chemicals in air that is partially polluted than would be the case if no sunshine were present.

12. There is no essential difference in smokestack emission standards and air quality standards.

18. Some chemicals are so damaging that they should be banned from smokestack emissions entirely.

Pre-Survey			Statement	Post-Survey		
A	U	D		A	U	D
7	11	9	6	15	2	7
2	0	25	10	19	1	4
1	11	15	12	1	3	20
1	6	20	18	21	3	1

The position presented by the retired people was based upon principles similar to that of the Audubon Society - sensitivity of a few, but unique creatures to small amounts of deadly pollutants in the air. It can be seen (statment six) that something was learned from this presentation, as reflected by the number of respondents who were initially undecided and later agreed with the contents of the statement. The role of sunshine in manufacturing new pollutants was also clarified. A noticable number of respondents shifted from disagreement (statement ten) to agreement on this issue. The contents of statement six, invisible air pollutants, logically led to the question of smokestack emission standards vs. air quality standards. In both cases, increased understanding is indicated in the post-survey. Finally, it can be shown that the hearing informed respondents to a greater degree that some chemicals are so dangerous that they should be banned altogether (statement eighteen).

In constructing the pre and post surveys, a deliberate effort was made to mix the various positions among questions which would not be identified in any particular sequence. It was felt that partitioning or blocking off identifiable positions by number would constitute a continuation of giving attention to isolated viewpoints, as was experienced during the hearing. Also, a number of statements were phrased in the negative to

avoid suggesting agreement. In a few instances, questions were ignored by the respondents, which created an "imbalance" in the final talley. Enough responses, however, were generated to effectively test the validity of the technique in "achieving" a Gestalt.

Recommendations:

Although the major theme of this practicum is directed toward the employment of the Gestalt theory of learning in a teaching situation, it should be recognized that no instructor is expected to confine all of his practice to a single throry. If teaching is to be practical and learning is to be useful, the eclectic approach will almost always have to be employed because of the varying ways different students learn and the diverse physical arrangements under which instruction must take place. A number of useful lessons can be learned from the teaching experience described in this practicum example, however. The following suggestions and recommendations are offered for consideration:

1. Instructors should make every effort to utilize teaching techniques that are commensurate with the subject matter at hand and student body in question.
2. An effort should be made to pre-assess levels of student knowledge of a unit of study before formal instruction begins. A post assessment should be conducted and a comparison made to determine the effectiveness of the teaching employed.
3. A conclusion (or series of conclusions) should be drawn for each teaching unit based upon data presented in the teaching technique. That is, the teaching experience should be productive in terms of reaching a goal, settling an issue, determining an answer, and meeting an objective - not drilling for drilling's sake.
4. Students should be involved in providing data used in the teaching experience. In so far as possible, they

should help teach themselves and oneanother. In like manner, they should play an active role in certifying the authenticity of data, drawing conclusions, forming a Gestalt, and evaluating their learning experience.

5. Emphasis should be placed upon recognizing the danger of drawing conclusions based upon inadequate and insufficient information. That is, construct a Gestalt as often as possible by utilizing a wide body of information and facts to complete a whole picture. The relational quality of bodies of information should be properly identified.
6. Students should be allowed to make recommendations for modification or implementation of teaching techniques that they feel are most useful and beneficial to them. These recommendations should be used as a data base for designing future teaching experiences. It is important that no association be made with the students' grades in obtaining these recommendations if truly honest opinions and critical assessments are to be obtained.
7. The administration should encourage innovative techniques in teaching by providing an atmosphere where experimental techniques (such as taped public hearings) are possible. Further, unusual and particularly successful teaching techniques and successful classroom experiements should be made known to all faculty members who wish to learn from others' experience.
8. The instructor should act as a facilitator who sets up circumstances whereby the student bay gain insight on his own through his own efforts as he utilizes the perceptual field arranged by the instructor.

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APPENDIX

PRE AND POST ATTITUDINAL SURVEY

Circle the A if you agree, the U if you are undecided or have insufficient knowledge to make a judgement, and the D if you disagree with the statement.

A U D 1. The citrus industry is one of the most significant polluters of air in Polk county as a result of burning rubber tires and crude oil to protect citrus trees.

A U D 2. Citrus trees more than pay back to society any damage done by burning tires and crude oil because of the oxygen citrus trees produce and the minimum number of days burning takes place.

A U D 3. Once a so-called "grace-period" is given to an industry to clean up its air pollution emissions, no additional extension should be given without an accompanying fine.

A U D 4. No industry should be forced to close down for polluting the air if its operations have not essentially changed from what they were before air quality standards were set.

A U D 5. Cattlemen are not entitled to compensation for cattle lost to flouride damage if they cannot show that the damage was caused by a particular source.

A U D 6. Air components need not be visible to the naked eye to do harm to organic and inorganic materials.

A U D 7. It is impossible to remove harmful chemicals from smokestack emissions without increasing the cost of products sold to the public.

A U D 8. The installation of air control equipment, monitoring instruments, making a private study of environmental impact constitutes good faith on the part of a polluting industry.

A U D 9. Testimony from private citizens who are untrained in matters of air chemistry should not be included as part of a public hearing record designed to set air quality standards for a given region.

A U D 10. Sunshine serves to create new and more harmful chemicals in air that is partially polluted than would be the case if no sunshine were present.

A U D 11. At present we do not possess the scientific technology to remove harmful chemicals and particulates from the air.

A U D 12. There is no essential difference in smokestack emission standards and air quality standards.

A U D 13. There is no hard evidence to show that non-organic materials are damaged by air pollutants.

A U D 14. It is more expensive to clean air that is already relatively clean to a cleaner state than it is to clean very dirty air to a somewhat cleaner condition.

A U D 15. The pollution of air and the American lifestyle are so closely related that it may be said everyone contributes to air pollution.

A U D 16. Some industries should be given special consideration in compliance to air pollution standards because of their essential contribution to the economy.

A U D 17. Fines imposed upon an industry for polluting the air should be levied in porportion to the damage done by the pollutant rather than a stipulated sum that applies to all polluters who happen to exceed air quality standards.

A U D 18. Some chemicals are so damaging that they should be banned from smokestack emissions entirely.

A U D 19. Air quality standards should be decided by the citizens of a local area such as a county rather than at a state or national level.

A U D 20. Credit for an industry's role in building the economy of an area before air pollution became a problem should be given when assessing fines for violation of air quality standards.

A U D 21. Government bodies, such as municipal governments, should not be held to air pollution standards since they operate on a no profit basis and with the consent of the public.

A U D 22. Those who insist upon absolute and complete compliance to air quality standards should not object to the cost of such compliance being included in products they purchase.

A U D 23. It should be the responsibility of an official government agency to monitor air quality, and private citizens, clubs, and special interest groups should not attempt to assume responsibility for this function.

A U D 24. The most harmful pollutant emitted from the phosphate industry is nitrogen oxide.

A U D 25. There should be minimum air quality standards set which are regarded as the very worst air can get and still be safe and under no conditions should the air quality be allowed to drop below this level.

NOTICE OF PUBLIC HEARING

October 17, 1974

TO WHOM IT MAY CONCERN:

The Board of the Florida Department of Pollution Control will hold a public hearing at 10:00 a.m., on November 20, 1974, in the Conference Room of the State Department of Pollution Control Building, 500 East Central Avenue, Winter Haven, Florida, for the purpose of receiving testimony, evidence and public comment on the following:

1. A petition to reconsider and modify the air compliance schedules for the achievement of particulates, flourides, and sulfur oxide emission standards promulgated persuant to Chapter 403, Florida Statutes, and Title 40, Code of Federal Regulations, Section 51.15 and 52.524(C), and to determine appropriate Department enforcement action for alleged violation of said schedules for the following:

Tampa Electric Company - excessive particulates

Swift Chemical Company - excessive sulfur oxides

Brewster Phosphate Company - excessive sulfur oxides and particulates

Food Division of Coca-Cola Co. - excessive particulates

U.S.S. Agri-Chemicals - excessive flourides, particulates and sulfur oxides

2. Said petition, if granted, would be a revision of the State of Florida Implementation Plan, promulgated by the Department and approved by the U.S. Environmental Protection Agency. Present schedules for compliance with EPA and State standards are July 1, 1975 for particulates, July 1, 1975 for sulfur oxides, and September 1, 1975 for flourides. These dates represent a preparation for compliance schedule of three years with the three year period terminating on the above said dates. The above petitioners request an extension of two years, thereby modifying the compliance schedule from three years to five years.

All persons interested and desiring to be heard will be given an opportunity to do so.

STATE DEPARTMENT OF POLLUTION CONTROL

PETER P. BALJET
Executive Director

SAMPLE TESTIMONY
ON PROPOSED AIR QUALITY STANDARDS

This is the written statement of my testimony at the (Date) public hearing on the proposed air quality standards for the West Central Florida Region. I submit this for inclusion into the hearing record.

My name is (name) . I have lived in and have been a permanent resident of Polk county for (number) years. It is obvious to anyone who has lived in the metropolitan area over a period of years that the quality of the air has steadily deteriorated (or held its own). (State your reasons, cite examples in terms of health, property damage, scenic abuse, etc.).

In the interest of all area residents, I want to see the West Coast Florida Air Quality Region have clean air and strong air quality standards. I would especially like to see a non-degradation clause included (or excluded) in the proposed air quality standards. I believe the long range timetable should be reduced (or extended) from (number) to (number) years (or months). (Tell why; support with facts, statistics, case examples, etc.).

I endorse (or do not endorse) the proposals made by the Air Quality Control Council, West Central Florida Region.

In closing, I would like to say that I regret (or appreciate) that the Air and Water Pollution Control Board gave such short (or long) notice of these proposals and of this hearing, since it makes it difficult (or possible) for private citizens to arrange to attend and make our views known. Thank you

Note: Any combination of the above statements can be used by any number of persons appearing at a hearing, and all statements should be substantiated by the judicious interpretation of published "authorativ e information."

BACKGROUND POSITION

Cattlemen's Association

The cattlemen's Association is made up of a few - compared to conservation groups, such as The Audubon Society - members who own or lease vast acres of land for cattle grazing. The nature of their operation simply requires the use of a lot of land.

Cattle ranches in the neighborhood of phosphate mines have already gone to court about fluorides in the air that have killed cattle. The association is interested in seeing that fluorides are kept to an absolute minimum and have little sympathy for the problems of the phosphate industry in achieving this end.

It should be remembered that these people are also private citizens and have an interest in air quality aside from business concerns. Their argument for clean air may be based upon their own health, the love for open spaces and living with nature (as ranch life tends to require), or simply resistance to change.

A sound argument can be made in their behalf in the face of ever increasing demand for food and the rising cost of meat. It must be remembered that their costs for running ranches have gone up with inflation. Recall only this month (October 1974) that dairy cattle cattle were shot and buried because dairy men could not afford to keep them at the price they were getting for milk.

You should direct your research toward answering the following questions and build a case to support your position:

1. Upon what grounds do cattlemen take a position for clean air standards?

2. What is the history of Polk county's cattle industry as it relates to airborn pollutants?

3. In what way is the production of triple-super-phosphate fertilizer at nearby phosphate plants both a benefit and a threat to Polk county cattlemen?

4. How do cattlemen obtain compensation for injured cattle do to air pollution?

5. Exactly what are the measurable physiological effects of fluorides upon cattle?

6. Is there any evidence to show that current air quality standards will be sufficient for the next ten years?

Florida Phosphate Council

It is commonly known already that the phosphate industry is the county's worst offender of clean air. Fluorides and sulfur oxides have a well documented history for the damage they have done. Of less importance and more easily managed, are particulates (smoke, fly ash, small debris from processing etc.) which still draw public attention because of their visibility.

Unfortunately, the cost of bringing gaseous effluents into line with state requirements represents an investment that runs into the millions in some cases. This increases the cost of operation and in the final analysis represents an increase in the price of the product produced - mostly fertilizer. In the last year alone the price of fertilizer has more than doubled, partly due to these factors. Yet the demand for efficient fertilizer is increasing by leaps and bounds in the face of world food demands.

Should the phosphate industry be so heavily penalized either by fines or having to absorb the cost of pollution control equipment, it could cause a reduction in work force or the eventual closing down of a plant. Economic side effects of these measures are obvious. Literally millions of dollars are poured into the local economy annually in pay checks.

The industry has a past record of accepting social responsibility as indicated in their willingness to restore torn up land from the mining process, but little recognition is given for this gesture. Many persons associated with the phosphate industry feel that they have done about all they can to accommodate the demands of extreme environmentalists without "killing the goose that laid the golden egg."

Any spokesman for the phosphate council would point out that the industry has already taken the initiative in restoring environmental quality. He would point out how essential the industry is to the county and nation in spite of complaints about spoiling the air. It might also be noted that the industry is "caught in the middle" between rapidly increasing demands for clean air, the cost of achieving it, and the absence of technology at the desired level.

Research should be directed toward the following areas:

1. What are the various techniques used to clean pollutants from the air and at what cost?

2. At what point will it become financially impossible to comply with air pollution standards and timetables as they exist?

3. What consideration should the industry be given if air pollution equipment is not available for installation because of the equipment manufacturer's fault?

4. What constitutes "good faith" on the part of an industry, and what is a "reasonable" timetable for compliance?

BACKGROUND STATEMENT

Florida Citrus Mutual

This is an association of citrus growers who represent an overwhelming financial interest in this county. They have been the backbone of central Florida's economy for years and have only recently come into dispute with the citizenery and its demand for a ban on burning tires to protect citrus groves against freezing.

They will be quick to point out that the oxygen the groves give in their photosynthetic process more than pays for any environmental damage done by burning crude oil, rubber tires or other fuels that give off particulates. The loss of a grove to a freeze cannot be measured in terms of good and bad air if the grove is given credit for its contribution to the economy.

In spite of this argument, burning tires represents a violation of the current clean air standards and can bring fines. The recent fuel shortage altered this condition somewhat, however. Grove owners would enjoy a considerable savings if they could revert to burning tires and crude waste oil and at the same time help in the solid waste management dilemma.

The citrus industry has also had its differences with the phosphate industry because of what fluorides do to citrus trees. They have gone to court and won in cases where fluorides ruined trees and fruit.

Any speaker from this group would tend to minimize the need for air quality standards dealing with particulates, would tend to encourage the use of tires as a fuel, but would object to the gaseous emissions of fluorides that might hurt citrus trees. He would also point out the significant contribution citrus makes to the economy and the "debt" society owes to the industry for its past contributions. It is after all, a world market.

Research should be centered around these questions:

1. What is the past record of the citrus industry in complying with air pollution laws?

2. What are the various techniques used to "fire" groves and at what cost? Why should the industry be required to change its techniques now when it has been acceptable to burn tires so long?

3. How practical is it to convert to the use of gas or other fossil fuels in the face of uncertain future supplies?

4. How often must groves be "fired" and what portion of grove land needs this care?

5. How do the economic benefits of citrus production compare to the disadvantages resulting in "firing" groves?

BACKGROUND STATEMENT

Mid State Lung Association

This is the same organization previously known as the Tuberculosis and Respiratory Disease Association, your Christmas Seal Organization. It changed its name just this year, but its history of fighting for clean air is well known.

The local association is made up of a skeleton staff, almost entirely of volunteers (only three or four paid employees) who contribute their time and effort to educating the public concerning respiratory diseases, effects of air pollution on public health, and establishing programs in public schools to educate children on these matters at an early age.

They have no tax support and derive their entire income from contributions, mostly through the purchase of Christmas seals. Their work in this area (Polk, Hardee, Sarasota, and Highlands counties) takes them into migrant labor camps, underprivileged areas, and to poverty stricken locations where respiratory diseases might flourish and medical attention not be available.

Although the state is organized into regions with the central headquarters located in Jacksonville, each area must call upon citizens to serve on committees. Some of these committees deal with such subjects as aid to the poor, air quality, legislation, and education. Many medical doctors, teachers, and business men and women give of their time and effort in this cause.

The association would tend to oppose any lowering of air quality standards, would be quick to point out the segment of population (mostly poor) who have suffered from bad air already, and would have facts and figures on hand to support their position.

Questions that they would consider would be:

1. What statistical information is available to show a connection between re piratory disease and ambient air quality?

2. What medical evidence exists to show that the fight for clean air is any more urgent than the fight for other segments of the environment?

3. Can it be shown that the Lung Association as an organization has a legitimate mission to perform by opposing air polluting industries? Who does the organization represent?

4. Can it be shown that the Lung Association's proposals and recommendations are a reasonable approach to preserving clean air?

5. What particular chemicals in the air are harmful to lungs?

BACKGROUND STATEMENT

Polk Environmental Protection Commission

This is an official county governmental body that was originally established to control insect and misquito growth in the county. When the environmental issue became popular with the public, it gradually took on additional responsibilities and became a "catch all" for a variety of environmental functions.

The staff is seriously undermanned for the many tasks that are assigned to it, and activities are limited by a tax based budget. Unfortunately, many of the problems that were not previously identified as environmental in nature have now taken on a new definition. For example, the county has been burning and burying its trash for years, but the practice is now considered an environmental threat.

Over the nation, the most common system of disposing of solid waste is still open dumps and burning. In these dumps, volume is reduced by 80% by burning before the remains are covered over and packed down. This practice reduces the rate at which new land must be sought and also minimizes the extent to which the land will settle once decay sets in. Burning is now criticized as a threat to clean air.

County "foggers" have been singled out as a polluter of air in their attempts to reduce misquito populations. The plane that sprays around the lakes early in the morning is attempting to answer the demand to reduce insect populations and at the same time not dump chemicals into the air. Since it is part of an official government agency carrying out its assigned mission, there is some question as to how much restrictions should be placed on the agency - an agency designed to protect the environment itself.

Any speaker from this office would tend to explain the "position" of open burning, the need for spraying, and define the limits of the agency's powers.

Questions of importance to this group would be:

1. Can it be shown that aerial spraying does not violate existing air standards and if not what standards are reasonable to accomplish the public's mission?

2. What is the alternative to open burning of solid waste as a means of disposal and at what cost?

3. What is the position of a government agency in fulfilling a public mandate to dispose of solid waste in an economic manner and at the same time comply with the legal requirements of a non-polluting policy?

BACKGROUND STATEMENT

The Audubon Society

The Audubon Society is one of the oldest and most respected conservation groups engaged in the fight for environmental preservation. At one time they were regarded as "little old ladies in tennis shoes" going through the woods with butterfly nets or "cookie-bird-watchers." This is no longer the case.

The Audubon publishes a monthly magazine of exceptional quality dealing with many forms of wildlife and environmental issues - not just birds. Their research, facts and figures, are well constructed and respected in almost any public hearing or court of law. recent years they have expanded their scope of interests to inc de virtually any environmental threat.

Speakers representing this group normally represent significant numbers in local membership, and of course, have the additional weight of national membership.

They would tend to support any measure that preserves the quality of air and oppose any further deteroriation of air quality or the lowering of standards. Their experience in environmental fights with opponents has taught them not to accept figures by industry's lawyers or "environmental specialists" from industry, but to search out their own information and load their argument with concrete specific information designed to drive a point home. If their cause goes so far as to get in court, they do not normally lose.

Questions for research in support of the Audubon cause are as follows:

1. What evidence exists to show that air pollution is a significant problem to wildlife? Cite specific cases.

2. What is the role of the private citizen (through his chosen organization) as a "watchdog" on air pollution?

3. Can it be shown that the over all quality of ambient air has deteroriated in the past ten years?

4. What particular chemicals in polluted air are most harmful to wildlife?

5. Do pollutants in the air effect non-organic materials or only organic tissue? If so, what chemicals?

Polk County Chambers of Commerce

These people represent the business and development interests and are concerned with promoting growth. While they want new industries to move in, they must now be more selective in the kinds of industries they recruit. This is because some industries are more "dirty" than others and tend to be unpopular with citizens who are familiar with their contribution to environmental deterioration - particularly air pollution.

The chambers of commerce have a strong selling point in their effort to obtain employment and preserve "prosperity" through growth. It is not always made clear,however, who enjoys the "prosperity" and who pays for environmental abuse.

Members of the chambers of commerce tend to be successful business persons who do not want to see much of a change unless it is more of what made them successful. They are normally of the "older" set with grown children and consider themselves to have made the establishment what it is today. Although in recent years younger and more liberal members have joined their ranks, their over-all nature is to remain conservative and not do anything that might disturb established institutions.

They would tend to side with industry in its fight to reduce the industrial cost of maintaining clean air, not so much because they don't want clean air, but because control impositions upon industry may cause it to move away and threaten the economic stability of the community.

Research should be directed toward the following points:

1. Can a solid case be made for granting an extension of time to a polluting industry for compliance to a schedule? If so, under what circumstances?

2. What is the economic burden born in unemployment as a result of forcing an industry to close because of strict air pollution regulations?

3. In what way is the recruitment of new business connected to clean air standards?

4. How does Florida's sunshine (a strong selling point) also serve to create air pollution problems?

5. How does the American life style dovetail with unclean air?

BACKGROUND STATEMENT

American Association of Retired People

This is a group of people who have come to Florida in hopes of spending their declining years in peace and comfort. They represent a cross section of occupations and come from various walks of life. In this group are found numerous cases of poor health, partly due to advanced age and partly due to environmental causes. It is estimated that as many as ten thousand people a year are advised by their physicians to leave New York City (one of many northern cities with foul air) for their health's sake. Many come to Florida.

The rising cost of medical care has placed many retired people in a position where they cannot endure further deterioration of ambient air quality, especially if they are on a fixed income. In many respects retired people represent a "forgotten" segment of Florida's population unless they organize into a group that demands recognition.

Any spokesman for this group is likely to remind the hearing examiner of conditions that exist in other locations and emphasize that Florida's clean air is their "last best hope."

Attention should be given to the following points:

1. What problems in air pollution are unique to retired and aged people?

2. What portion of the local population is composed of retired people? How important is their voice in terms of numbers of people represented?

3. What is the financial contribution to the economy made by retired people? Significant? Minor? How does one measure the worth of a person in terms of his contribution to society and what society does to him?

4. What historical insights in regard to air pollution can be offered by retired people that others might not have?